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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Masahiro Ebiko

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EXAMINER

MAKI, STEVEN D

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,783	Applicant(s) EBIKO, MASAHIRO	
	Examiner Steven D. Maki	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>121405</u> . | 6) <input type="checkbox"/> Other: ____. |

1) The disclosure is objected to because of the following informalities: In the specification and abstract, "rug grooves" should be --lug grooves--.

Appropriate correction is required.

2) Claims 1-9 are objected to because of the following informalities: In claim 1-9, "rug grooves" should be --lug grooves--. Appropriate correction is required.

3) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4) **Claims 1-3 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 006 (JP 01-178006) in view of Graas (US 4,574,856) and Landers et al (US 6,450,223).**

Japan 006 discloses a pneumatic tire having a tread comprising five rows of blocks, four "see-through" circumferential main grooves (1b, 1a, 1a, 1b) and transverse sub-grooves (2a, 2b, 2c). The ground contact area 10 has a width W. The transverse sub-grooves 2b and 2c extend from the inner circumferential grooves (1a, 1a) toward the outer sides of the tire in a "reverse rotational direction of the tire" so as to communicate with the ground contact ends (11, 12). The transverse sub-grooves 2a between the center blocks are V-shaped and have their vertexes facing to the "reverse rotational direction of the tire". The two groove portions of the V-shaped transverse sub-groove are each inclined at an angle θC of 20-40 degrees with respect to the axial direction (figure 1, page 4 lower left), which is the same as 50-70 degrees with

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respect to the circumferential direction. The width W_c of the center blocks is 15-35% of the ground contact width W (figure 1, page 4 lower right). This means that the inner edge of each inner circumferential groove (1a, 1a) is spaced from the equatorial plane of the tire by 7.5% to 17.5% W . This range of 7.5-17.5% overlaps the claimed range of 4-15%. The tire has enhanced brake performance on wet road and reduced pattern noise. See abstract and figure 1. Japan 006 is silent as to the net to gross (the ratio ACA/GCA of a total ground contact area ACA of the blocks to a ground contact area GCA of the entire tread surface).

As to claim 1, it would have been obvious to one of ordinary skill in the art to provide the directional tread of Japan 006's pneumatic tire with a net to gross (ratio ACA/GCA of a total ground contact area ACA of the blocks to a ground contact area GCA of the entire tread surface) of 55% to 75% since (1) Graas suggests providing the tread of a pneumatic tire, which may be directional (figure 4), such that the net to gross is 60% to 80% to obtain efficient evacuation of water, mud or snow from the footprint of the tire and (2) Landers et al suggests providing a directional tread of a pneumatic tire having four circumferential grooves (12, 17, 17, 12) with a net to gross of 60% to 68% to obtain suitable wet traction / stopping. .

Furthermore, it would have been obvious to one of ordinary skill in the art to provide the V-shaped transverse grooves between the center blocks of Japan 006's tread such that the groove width W of the V-shaped transverse groove is 10-25% of the circumferential length of the center block in view of (1) Japan 006's teaching to form the grooves in the tread to enhance brake performance on wet road, (2) the relative groove

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width of the V-shaped transverse grooves and length of center blocks shown in figure 1 of Japan 006 and (3) the suggestion from Graas and Landers et al to size the grooves of the tire tread to obtain a net to gross of 60-80% and 60-68% respectively to improve wet traction / stopping. In other words, the optimum groove width of center grooves 2a relative to the length of the center blocks of Japan 006's tire tread would have been obvious and could have been determined without undue experimentation in view of the above noted teachings of the applied prior art.

As to claim 2, The two groove portions of the V-shaped transverse sub-groove are each inclined at an angle θ C of 20-40 degrees with respect to the axial direction (figure 1, page 4 lower left), which is the same as 50-70 degrees with respect to the circumferential direction.

As to claim 3, the width W_m is 50-70% of the ground contact width W (figure 1, page 5 upper left). This means that the inner edge of each outer circumferential groove (1b, 1b) is spaced from the equatorial plane by 25% to 35% W . This range of 25-35% overlaps the claimed range of 35-45%.

As to claim 6, the outer circumferential grooves (1b, 1b) are in symmetrical positions with respect to the equatorial plane of the tire.

As to claim 7, the vertexes of the sub-grooves 2a are located on the equatorial plane of the tire.

As to claim 8, the inner circumferential grooves (1a, 1a) are located in symmetrical positions with respect to the equatorial plane.

As to claim 9, it would have been obvious to provide Japan 006's blocks with sipes in view of Graas and Landers et al's suggestion to provide blocks of a directional tread with sipes in order to improve for example traction.

5) Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 006 (JP 01-178006) in view of in view of Graas (US 4,574,856) and Landers et al (US 6,450,223) as applied above and further in view of Ochi et al (US 6,571,844).

As to claim 4, it would have been obvious to one of ordinary skill in the art to provide a narrow circumferential groove between each outer circumferential groove 1b and each inner circumferential groove 1a of Japan 006's tread since Ochi et al teaches providing a tire tread, which like that of Japan 006 has four main circumferential grooves (14, 16), with a pair of narrow circumferential grooves 15 to obtain good straight line stability and cornering when driving on snow; it being noted that Graas teaches that an all-season tire should have good wet and snow traction.

6) Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 006 (JP 01-178006) in view of in view of Graas (US 4,574,856) and Landers et al (US 6,450,223) as applied above and further in view of Hasegawa et al (US 5,435,364) and Nakagawa (US 5,373,882).

As to claim 5, it would have been obvious to one of ordinary skill in the art to offset the intermediate transverse sub-grooves 2b ("first lug grooves") and the shoulder transverse sub-grooves 2c ("second lug grooves") in Japan 006's tread since Hasegawa et al and Nakagawa suggest offsetting intermediate transverse grooves and shoulder

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transverse grooves of a directional tire tread wherein Hasegawa et al teaches using such an offset (shift) to reduce noise (col. 6) and Nakagawa teaches using V-shaped center transverse grooves (figure 3). .

Remarks

7) The remaining references are of interest.

8) No claim is allowed.

9) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven D. Maki/
Primary Examiner, Art Unit 1791

Steven D. Maki
March 26, 2008